REMARKS/ARGUMENTS

Claims 1-26 were previously pending in the application. Claims 1-2, 5-6, 8, 11-13, 15-19, 21-24, and 26 are amended; and new claims 27-35 are added herein. Assuming the entry of this amendment, claims 1-35 are now pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of the foregoing amendments and these remarks.

Claim 24 is amended at line 5 to recite "configured" instead of "configure" in order to correct a typographical error. This amendment to claim 24 is not made to overcome any prior-art rejections.

On page 2 of the office action, the Examiner rejected claims 1, 4, 7, 9, 11-12, 17, and (presumably) 8 under 35 U.S.C. 102(e) as being anticipated by Kobayashi. On page 3, the Examiner rejected claims 2, 10, 16, 18-19, and 22-24 under 35 U.S.C. 103(a) as being unpatentable over Kobayashi. On page 3, the Examiner objected to claims 3, 5-6, 13-15, 20-21 and 25-26 as being dependent upon a rejected base claim, but indicated that those claims would be allowable if rewritten in independent form. For the following reasons, the Applicant submits that all of the now-pending claims are allowable over Kobayashi.

Claims 1 and 16-18

Currently amended claim 1 is directed to a method for synthesizing an auditory scene. An input audio signal is divided into a plurality of different frequency bands. Two or more different sets of one or more spatial parameters are applied to two or more of the different frequency bands in the input audio signal to generate two or more synthesized audio signals of the auditory scene.

The Applicant submits that claim 1 is allowable over Kobayashi. For similar reasons, the Applicant submits that currently amended claims 16-18 are allowable over Kobayashi. Since claims 2-15 and 27-29 depend variously from claim 1, it is further submitted that those claims are also allowable over Kobayashi.

Claim 2

According to currently amended claim 2, the input audio signal corresponds to a combination of audio signals from two or more different audio sources, and each set of one or more spatial parameters corresponds to a different audio source in the auditory scene. Support for the amendment to claim 2 is found, for example, in Fig. 4. While Kobayashi suggests that the input audio signal could correspond to a multiplicity of audio sources (e.g., see column 5, lines 57-60), there is no teaching or even suggestion in Kobayashi of "each of one or more spatial parameters corresponding to a different audio source in the auditory scene." As such, the Applicant submits that this provides additional reasons for the allowability of claim 2 over Kobayashi.

Claim 7

According to claim 7, the input audio signal is divided into the plurality of different frequency bands based on information corresponding to the different sets of one or more spatial parameters. While Kobayashi suggests that the input audio signal is divided into a plurality of different frequency bands (e.g., see column 6, lines 4-13), there is no teaching or even suggestion in Kobayashi that this division is "based on information corresponding to different sets of one or more spatial parameters." As such, the Applicant submits that this provides additional reasons for the allowability of claim 7 over Kobayashi.

Claim 8

According to currently amended claim 8, the input audio signal corresponds to a combination of audio signals from two or more different audio sources, and each set of one or more spatial parameters is applied to at least one frequency band in which the input audio signal is dominated by a corresponding audio source in the auditory scene. Support for the amendment to claim 8 is found, for example, in Fig. 4. While Kobayashi suggests that the input audio signal could correspond to a multiplicity of audio sources (e.g., see column 5, lines 57-60), there is no teaching or even suggestion in Kobayashi of "each set of one or more spatial parameters being applied to at least one frequency band in which the input audio signal is dominated by a corresponding audio source in the auditory scene." As such, the Applicant submits that this provides additional reasons for the allowability of claim 8 over Kobayashi.

Claim 12

According to currently amended claim 12, the two or more synthesized audio signals comprise three or more signals of a multi-channel audio signal corresponding to the auditory scene. Support for the amendment to claim 12 is found, for example, on page 15, lines 14-17, of the specification. While Kobayashi teaches synthesizing the left and right channels of a stereo audio signal, there is no teaching or even suggestion in Kobayashi for synthesizing three of more signals of a multi-channel audio signal. As such, the Applicant submits that this provides additional reasons for the allowability of claim 12 over Kobayashi.

Claim 27

According to new claim 27, for each of the two or more different frequency bands, the corresponding set of one or more spatial parameters is applied to the input audio signal as if the input audio signal corresponded to a single audio source in the auditory scene. Support for new claim 27 is found in original claim 1. Since Kobayashi does not teach or even suggest such a feature, the Applicant submits that this provides additional reasons for the allowability of claim 27 over Kobayashi.

Claim 28

According to new claim 28, the input audio signal corresponds to a combination of three or more audio signals of a multi-channel signal, wherein each different set of one or more spatial parameters is generated by comparing at least two of the audio signals in a corresponding frequency band. Support for new claim 28 is found, for example, in Fig. 4. Since Kobayashi does not teach or even suggest such a feature, the Applicant submits that this provides additional reasons for the allowability of claim 28 over Kobayashi.

Claim 29

According to new claim 29, the method further comprises decompressing a compressed audio signal to generate the input audio signal. Support for new claim 29 is found, for example, on page 14, lines 33-34, of the specification. Since Kobayashi does not teach or even suggest such a feature, the Applicant submits that this provides additional reasons for the allowability of claim 29 over Kobayashi.

Claims 19 and 22-24

Currently amended claim 19 is directed to a method for processing two or more input audio signals. The two or more input audio signals are converted from a time domain into a frequency domain.

A set of one or more auditory scene parameters is generated for each of two or more different frequency bands in the two or more converted input audio signals. The two or more input audio signals are combined to generate a combined audio signal.

There is no teaching in Kobayashi that a set of one or more auditory scene parameters is generated for each of two or more different frequency bands in two or more converted input audio signals. As such, the Applicant submits that claim 19 is allowable over Kobayashi. For similar reasons, the Applicant submits that currently amended claims 22-24 are allowable over Kobayashi. Since claims 20-21, 25-26, and 30-34 depend variously from claims 19 and 24, it is further submitted that those claims are also allowable over Kobayashi.

Claim 30

According to new claim 30, each set of one or more auditory scene parameters is generated as if the corresponding frequency band corresponded to a single audio source in an auditory scene. Support for new claim 30 is found in original claim 19. Since Kobayashi does not teach or even suggest such a feature, the Applicant submits that this provides additional reasons for the allowability of claim 30 over Kobayashi.

Claim 31

According to new claim 31, the two or more input audio signals are three or more audio signals of a multi-channel signal, and each set of one or more auditory scene parameters is generated by comparing at least two of the audio signals in the corresponding frequency band. Support for new claim 30 is found, for example, in Fig. 4. Since Kobayashi does not teach or even suggest such a feature, the Applicant submits that this provides additional reasons for the allowability of claim 31 over Kobayashi.

Claim 32

According to new claim 32, the method further comprises compressing the combined audio signal to generate a compressed audio signal. Support for new claim 32 is found, for example, on page 14, lines 33-34, of the specification. Since Kobayashi does not teach or even suggest such a feature, the Applicant submits that this provides additional reasons for the allowability of claim 32 over Kobayashi.

Claim 33

According to new claim 33, the combined audio signal is generated by performing auditory scene removal on the input audio signals in the frequency domain based on the two or more sets of one or more auditory scene parameters. Support for new claim 33 is found in original claim 21. Since Kobayashi does not teach or even suggest such a feature, the Applicant submits that this provides additional reasons for the allowability of claim 33 over Kobayashi.

Claim 34

According to new claim 34, the combined audio signal is generated by averaging the input audio signals. Support for new claim 34 is found, for example, on page 14, lines 20-21, of the specification. Since Kobayashi does not teach or even suggest such a feature, the Applicant submits that this provides additional reasons for the allowability of claim 34 over Kobayashi.

Claim 35

New claim 35 is directed to a bitstream comprising a combined audio signal and a plurality of auditory scene parameters, wherein (1) the combined audio signal is generated by combining two or more input audio signals and (2) the auditory scene parameters are generated by (i) converting the two or more input audio signals from a time domain into a frequency domain and (ii) generating a set of one or more auditory scene parameters for each of two or more different frequency bands in the two or more converted input audio signals.
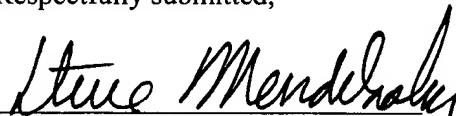
Support for new claim 35 is found, for example, in Fig. 3. Since Kobayashi does not teach or even suggest such a combination of features, the Applicant submits that claim 35 is allowable over Kobayashi.

In view of the foregoing, the Applicant submits that the rejections of claims under Sections 102(e) and 103(a) have been overcome.

In view of the above amendments and remarks, the Applicant believes that the now-pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Respectfully submitted,

Date: 2/10/05

Customer No. 46900
Mendelsohn & Associates, P.C.
1515 Market Street, Suite 715
Philadelphia, Pennsylvania 19102

Steve Mendelsohn
Registration No. 35,951
Attorney for Applicant
(215) 557-6657 (phone)
(215) 557-8477 (fax)